



Delivering BCM1250 GigaHertz Multiprocessors with HyperTransport Support

Broadcom Corporation
Broadband Processor Business Unit



Introduction

- Leader in the development of high-performance, integrated family of processor solutions for networking and communications equipment
 - World's highest performance MIPS™ core, the SB-1 (up to 1 GHz)
 - World's “best-in-class” power levels
 - World-class integration of multiple SB-1 CPUs, memory and I/O
 - Standard development tools & operating systems for programming flexibility
- Full licensee of the MIPS architecture

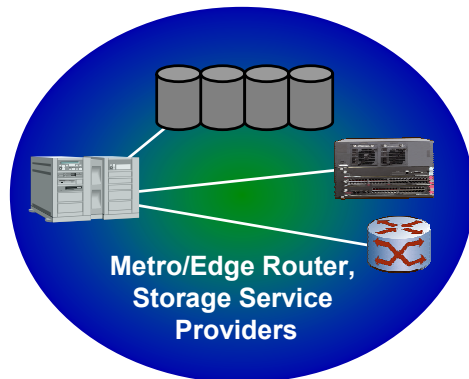
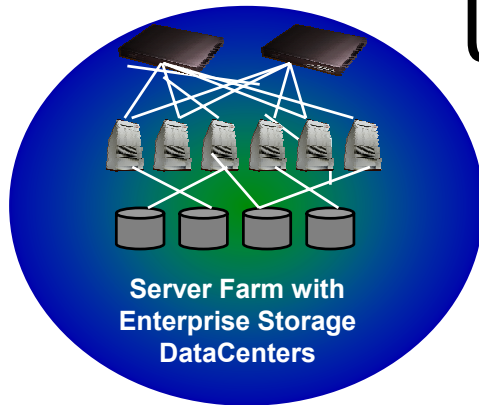


Why Broadcom Chose HyperTransport

- High I/O bandwidth reduces bottlenecks
- HyperTransport allows multiple BCM1250 processors to be connected for scalability
- Software is compatible with PCI
- System designs are similar to PCI
- HyperTransport-PCI bridges are available to customers



HyperTransport Supports Us in These Markets



- Switches, Routers, Gateways, Wireless Infrastructure
- Hardware Acceleration of Virtual Private Networks (VPN), Firewalls
- Servers, Server Appliances, Network Storage



Broadcom BCM1250

Block Diagram

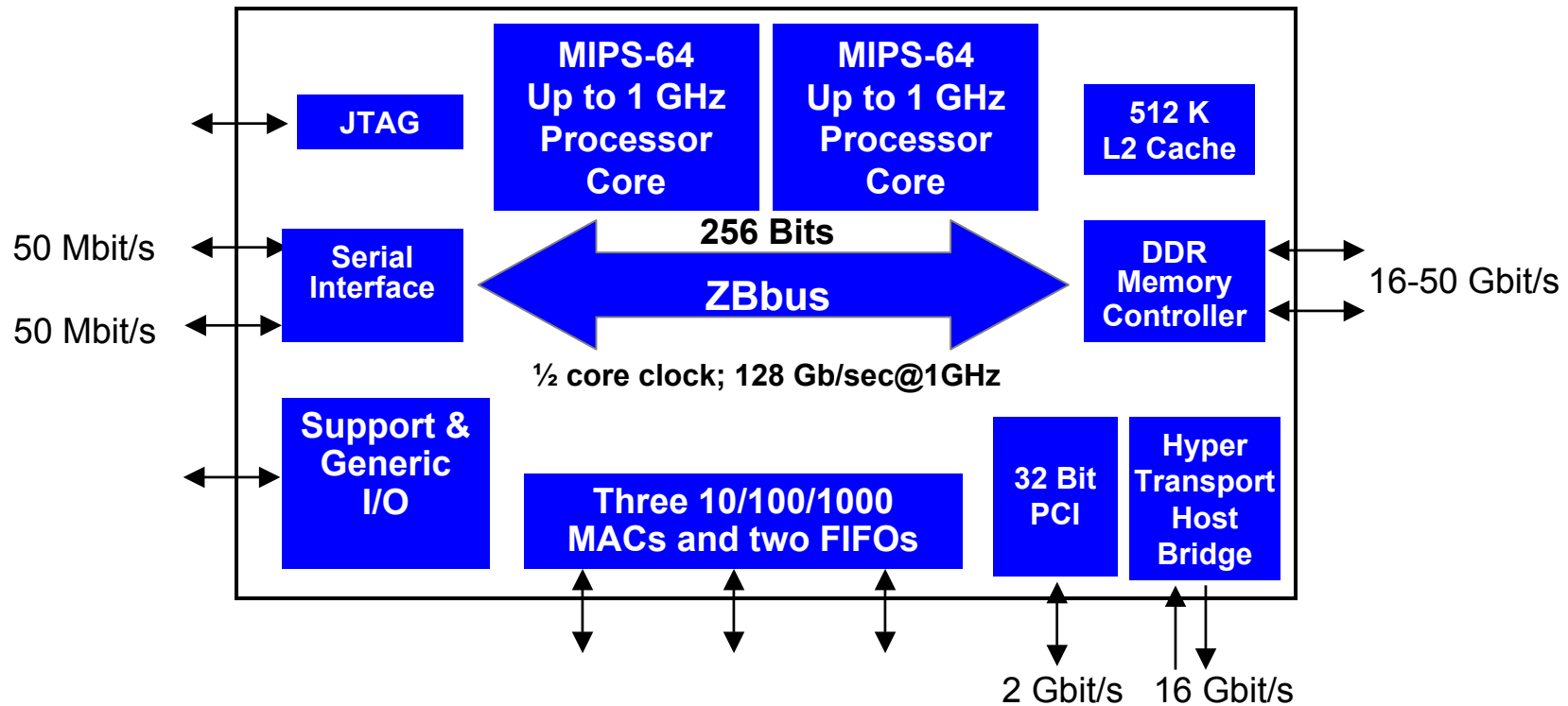
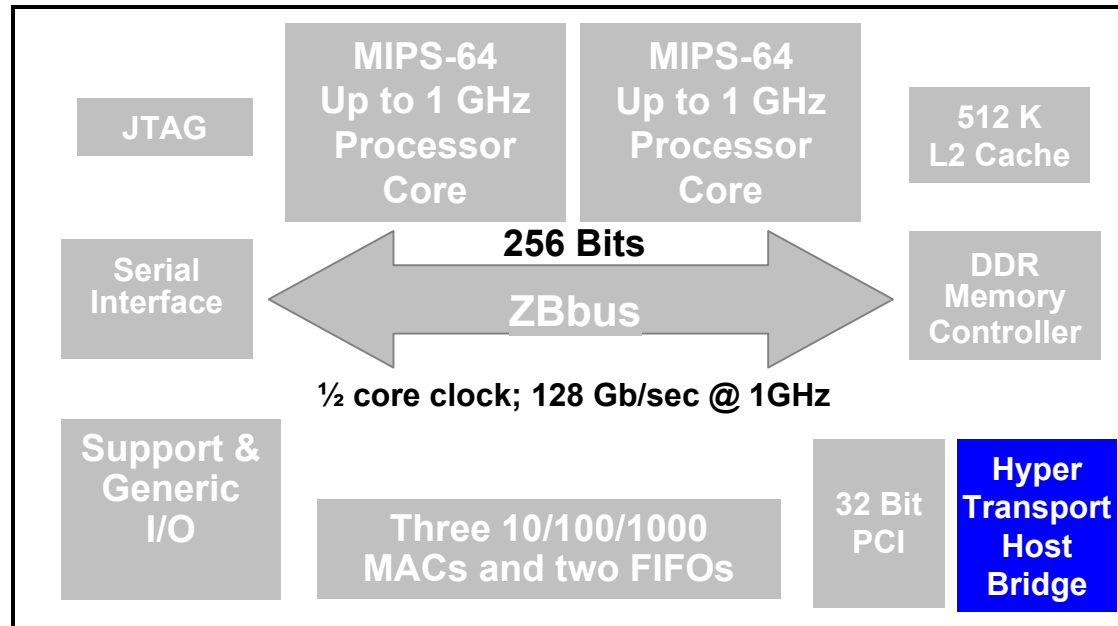


Diagram is simplified



HyperTransport™
CONSORTIUM
www.hypertransport.org

BCM1250 HyperTransport Bus



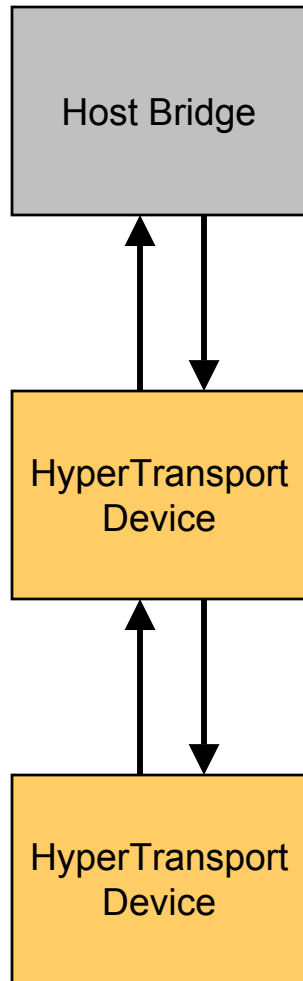
- HyperTransport I/O Interface
 - 8 bits wide @ 500 MHz DDR gives 8 Gbit/s each direction

Diagram is simplified



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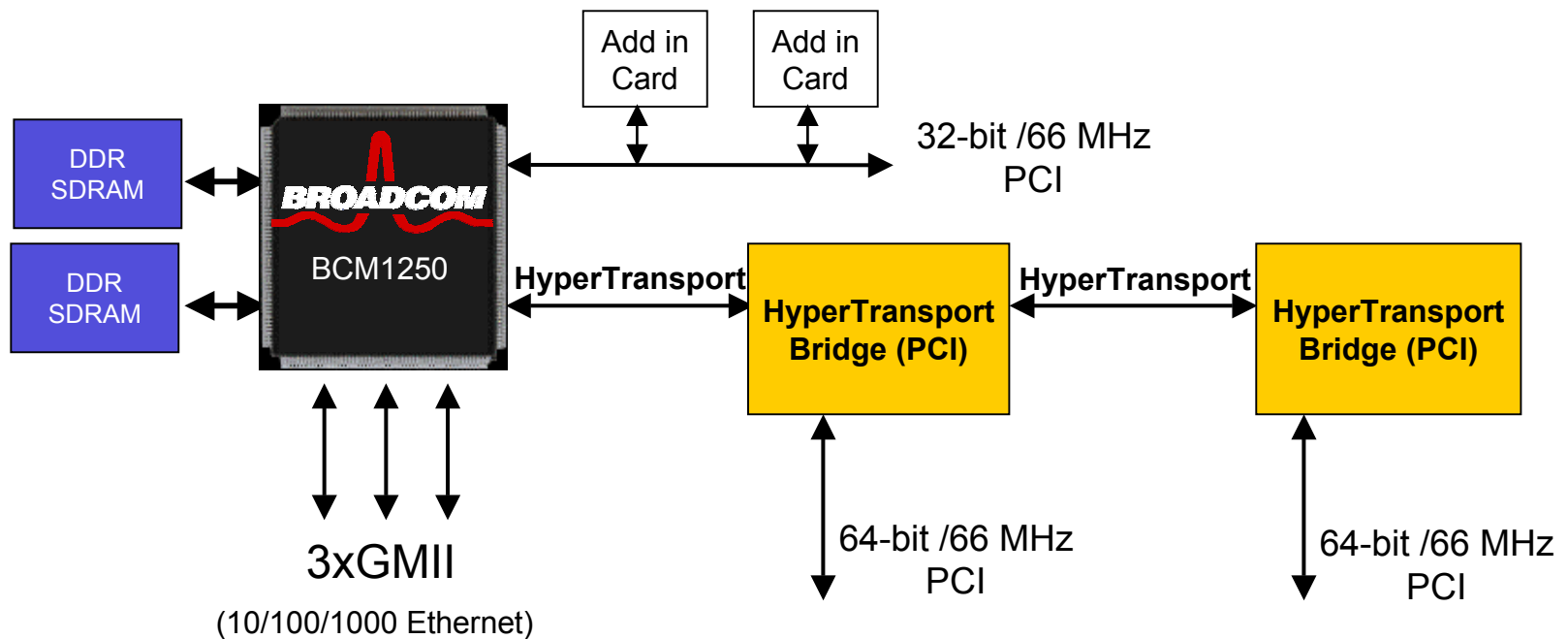
HyperTransport I/O Bus



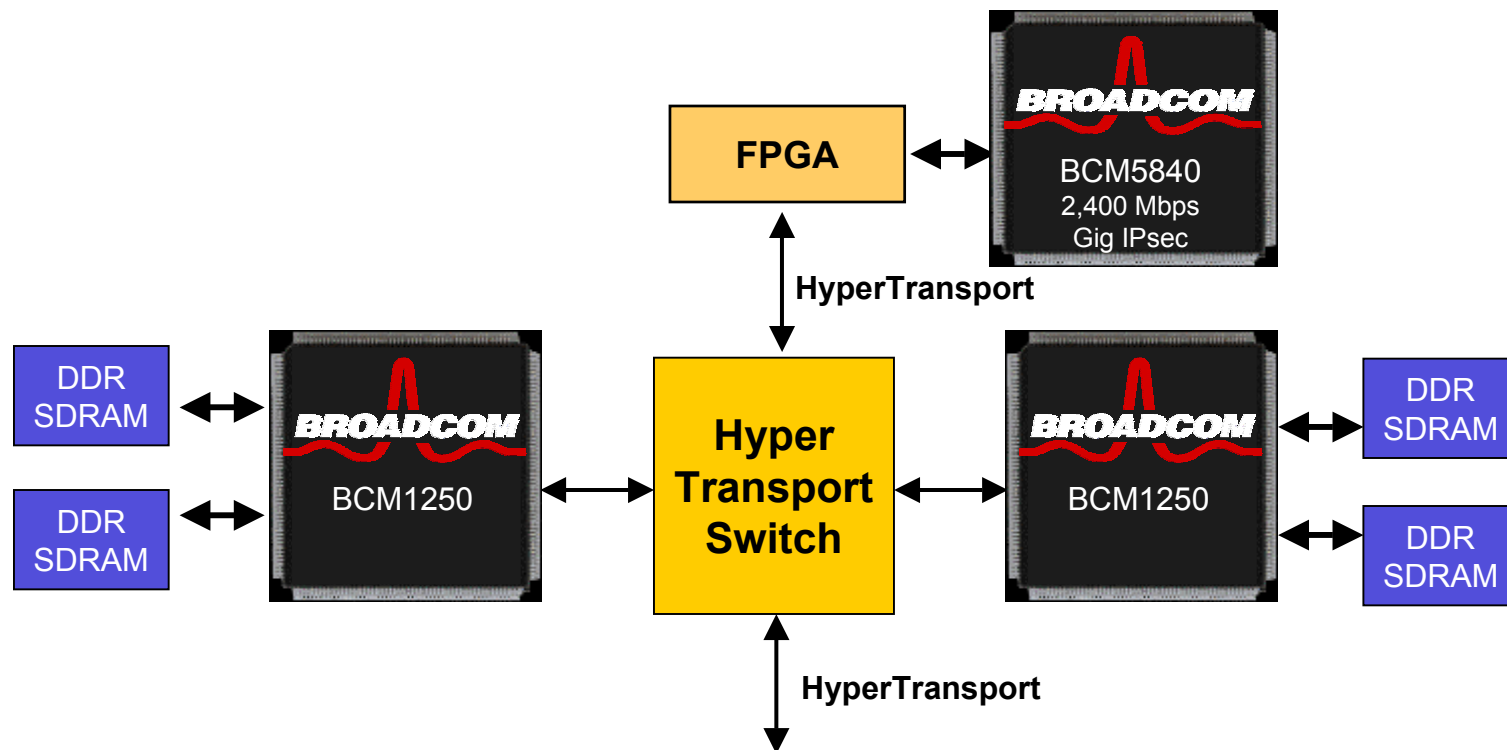
- New High Speed, Packet Based, I/O Bus
 - Defined by HyperTransport Consortium, including AMD, Cisco, API Networks, Sun, Apple, Nvidia, and Broadcom
 - Logically looks like PCI and uses PCI configuration mechanism
- Point-to-Point, Controlled Electricals
 - LVDS signaling
 - Source clocked at 500 MHz, data sent on both clock edges
 - 2, 4, 8, 16 or 32 bits wide in each direction for specification
 - BCM1250 uses 8-bit links giving 8 Gbit/s in each direction, or 16 Gbit/s total
- Devices in Design Now
 - PCI/PCI-X bridges, HyperTransport switch, South bridges, MACs, graphics
- Interfaces to ASICs and FPGAs



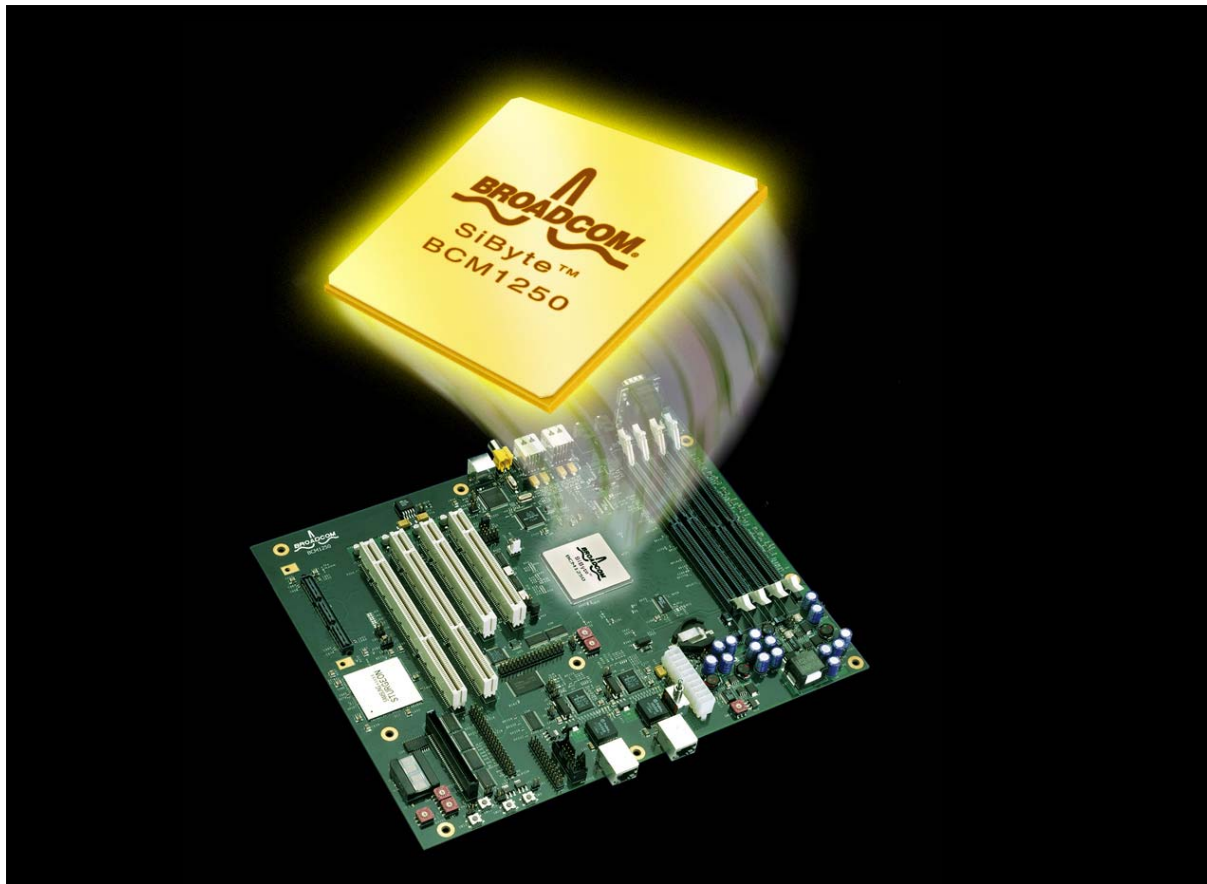
BCM1250 in Host-Based Systems



Scaling Performance via HyperTransport Switch



Broadcom is the first to deliver a processor with HyperTransport!



Broadcom Demonstrations

- Double-Hosted HyperTransport
 - Two BCM1250, acting as separate hosts, communicating via HyperTransport
- Using the HyperTransport-PCI Bridge
 - Two BCM1250s communicating through the HyperTransport-PCI Bridge

